

ODOT Bridge Inspection Program QA Review

Bridge Inspection has played and will continue to play an ever-increasing important role in assuring that a safe infrastructure is available for the public's use. As our bridges continue to age and deteriorate, an accurate and thorough condition assessment of each structure is critical in maintaining a safe, functional and reliable highway system.

The six primary responsibilities of the bridge inspection program are:

- 1.) Maintain Public Safety and Confidence (Structural Concerns)
- 2.) Protect Public Investment (Maintenance Concerns)
- 3.) Maintain a desired level of service (Functionality Concerns)
- 4.) Provide Bridge Inspection Program Support
- 5.) Provide Accurate Bridge Records
- 6.) Fulfill Legal Responsibilities (In Compliance with CFR)

Fulfilling Our Legal Responsibilities

Though not specifically required in the Code of Federal Regulations, during a 1989 Bridge Inspection Program Review, FHWA strongly encouraged each State to provide a QA / QC review of the bridge inspections performed by that State. Each local FHWA Division Office was directed to work closely with each State to develop a program that would follow-up inspection findings and provide a quality control of inspections performed. The objectives of the program were to be as follows:

- Generate a greater consistency of the data,
- Identification of unclear or misleading guidance,
- Better communication between the inspectors and management, and
- Better understanding and prioritization of urgent inspection findings.

FHWA considered the QA/QC Review program to be an integral part of the overall inspection program. The goal of the review program was to perform an independent field review of 5% of the completed inspections that were performed by each inspection team per year.

Thoroughness and Accuracy of the Bridge Inspection Report

As with all business practices, we should be cognizant of and continually scrutinize our business practices to assure that each is as efficient and as effective as possible. The word "Efficiency" as used herein refers to "doing things right the first time" (assuring that sufficient time and resources are allocated to each structure to ensure that the inspection was performed as thoroughly as necessary). The word "Effectiveness" as used herein refers to "doing the right things" (assuring that each structure is inspected by the due date). Due to the large number of structures that are assigned to each inspector, it's imperative that each region inspector, budget their time and resources wisely. A rushed bridge inspection will quite often result in missed bridge inspection elements and inaccurate condition assessment rating information. A completely independent QA field review of the last bridge inspection will clearly point out differences and provide a measure of its timeliness, thoroughness and accuracy.

Accuracy of the data in the bridge inspection database

The entire bridge program revolves around the bridge condition assessment information contained in the bridge inspection database. Large multi-million dollar decisions are made annually based solely on that data. Therefore, it is absolutely paramount that the data is as accurate and correct as possible. There is a lot of political embarrassment and loss of program credibility when it is shown that a program decision was made on faulty information. By performing a QA field review on the structures in the bridge program that are scheduled to receive some action, we are validating the information associated with that structure. Bottom-line, in addition to keeping the State of Oregon in compliance with the Code of Federal Regulations, initiation of such a program just makes good business sense.

STIP Projects

To assure that the right projects are getting into the State Transportation Improvement Program, every project needs a champion. By reviewing the structures, in the worst condition, in each region, the QA Review Team is able to discuss, on site, the appropriate strategy and can help develop the appropriate rehabilitation or replacement plan for every structure in question. The QA Review Team is basically functioning as a “sounding board”, if you will.

Major Bridge Maintenance Projects

We consider these projects to be “stopgap” measures until a full rehabilitation or replacement project can be programmed by the STIP. These projects are also generally beyond the resources of the district bridge maintenance crews, in terms of time, money, equipment, or expertise involved. By reviewing the structures in the worst condition, the Review Team is able to discuss, on site, the appropriate repair / rehabilitation / replacement strategy and/or preliminary design concepts.

Load Rating / Load Posting Issues

Implementing Load Restrictions on structures are extremely political. However, on the other hand, one of the major responsibilities we are charged with is to assure that a safe facility is available to the public. Therefore, it is absolutely imperative that all deficiencies that directly influence the load rating calculations be located during the ODOT inspection effort and addressed immediately. By reviewing the bridges in the worst conditions, the QA review team provides a second look and/or a second opinion, regarding the severity of the deficiencies and their potential implications. It's like a person being confronted with a serious medical condition; they are encouraged to seek a second opinion from either another doctor or specialist in a given field of medical science.

Bridge Inspection Training

One of our major responsibilities is to provide a complete, thorough and accurate bridge inventory and condition assessment information. The QA Review Team is made up of bridge inspectors from the other regions and any newly hired bridge inspection staff, in order to assure statewide consistency between the geographically dispersed bridge inspectors and to provide on-

the-job training for the new inspection staff. All questions are openly discussed, on site, to assure that everyone is in full agreement and that we are achieving statewide consistency. Also, ODOT Bridge Design Staff are encouraged to participate in the QA reviews, so they can obtain a better understanding of the bridge elements, the language contained in the condition state descriptions, and just exactly what the assigned condition assessment ratings are indicating about the bridge elements.

QA Review Process

A. Office Review

- 1.) Assure that all inspections are performed by the prescribed due date.
- 2.) Assure that there is an appropriate level of follow-up on identified critical deficiencies.

B. Field Review

- 1.) Selection of the bridge sampling.
 - Bridges with urgent or critical maintenance recommendations
 - Bridges with load rating / load posting issues
 - Bridges that are in need of bridge rehab / replacement actions
 - New structures recently opened to traffic – check initial inspection
 - The sampling size will be at least 5% of the regional routine inspections performed
- 2.) Selection of the QA Review Team
 - A QA Review will be performed in each region annually (host inspector)
 - Bridge Inspection staff from other regions will rotate onto the team as well as any new bridge inspection staff. Bridge Design personnel are encouraged to participate in the QA Review process (guest inspectors)
- 3.) Independent inspection of the bridge
 - The QA Review Team will generate a totally independent inspection report.
- 4.) Comparing bridge inspection findings
 - The bridge inspection report generated by the QA Review Team will then be compared with the last bridge inspection report of record.
- 5.) Differences between the two inspections are then openly discussed so that we can determine why any differences might exist.
- 6.) Initiate interviews with the appropriate district bridge maintenance personnel to determine the effectiveness of the bridge inspection effort.